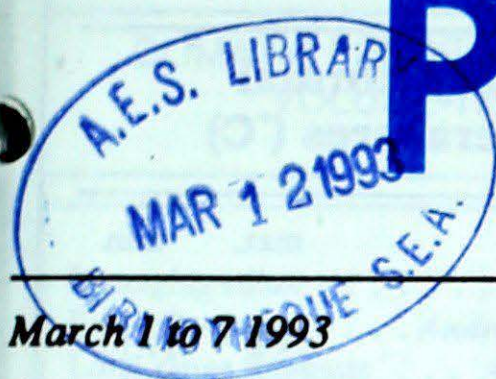




Climatic Perspectives



March 1 to 7 1993

A weekly review of Canadian climate and water

Vol. 15 No. 10

Winter is not over – til its over!

Although spring officially begins on March 20, residents living in Ontario, Quebec and Atlantic Canada are probably asking themselves, "will winter ever end"?

Since early February a succession of winter storms have tracked out of the American southwest towards the east coast, bringing heavy snowfalls to the eastern half of the country. In addition, temperatures in Atlantic Canada have been averaging below normal for the past eight consecutive weeks, due to a predominantly northwesterly circulation.

Two more fierce winter storms pounded Atlantic Canada this week, producing snowfalls in the 40 to 60 centimetre range. The first storm, which was in the process of departing the Maritimes on March 1, deposited, in some areas, more than 20 cm of snow. Winds were clocked gusting as high as 85 km/h at Charlottetown, P.E.I. The storm brought a mixture of snow, rain and freezing rain to Newfoundland on Monday, March 1. On Tuesday, an associated warm front gave rain, drizzle and fog to all portions of the Island, while two more disturbances deposited 10 to 20 cm of snow across some parts of Newfoundland on the 3rd and 4th.

The next weather system to affect the Maritimes arrived on Friday, March 5. The storm redeveloped off the U.S. east coast on Friday after brushing past the lower Great Lakes the evening before. The snow began on the morning of the 5th in southwestern Nova Scotia and spread across the remainder of the region on Sat-

urday. By the time it was over, between 15 and 35 centimetres of fresh snow covered the Maritimes. Winds gusting to 141 km/h were reported at Grand Etang, Cape Breton Island on Saturday night. Needless to say the storm brought transportation to a crawl, and there were numerous school closings and cancellations.

This is the 8th major storm to hit the region since December. So far this winter Moncton and Charlo, N.B. have received 299 and 315 centimetres of snow, compared to an end of March normal snowfall of 298 and 344 centimetres, respectively.

Ontario's snowy winter drags on

The first week of March continued a snowy pattern established in February. Winter storm number six hit on the evening of the 4th, producing heavy snow and blowing snow which lasted several hours in southern Ontario. More importantly, with this storm were strong winds gusting to 80 to 100 km/h, as this band of heavy snow moved through. By the time it was over, southwestern Ontario and the Niagara Peninsula received 10 to 20 centimetres of the fluffy stuff. In contrast, temperatures in northwestern Ontario this week climbed into the double digits.

Elsewhere...

Relatively mild air covered the Northwest Territories, allowing daytime temperatures to climb close to the freezing mark, just in time for the winter carnival at Hay River. Freezing rain was reported in the

Mackenzie Valley. Most locations in the Yukon received a mixture of cloud and sun. A disturbance crossing the central Yukon late in the week left 10 cm of fresh snow on the ground. It was clear and very cold in the eastern Arctic.

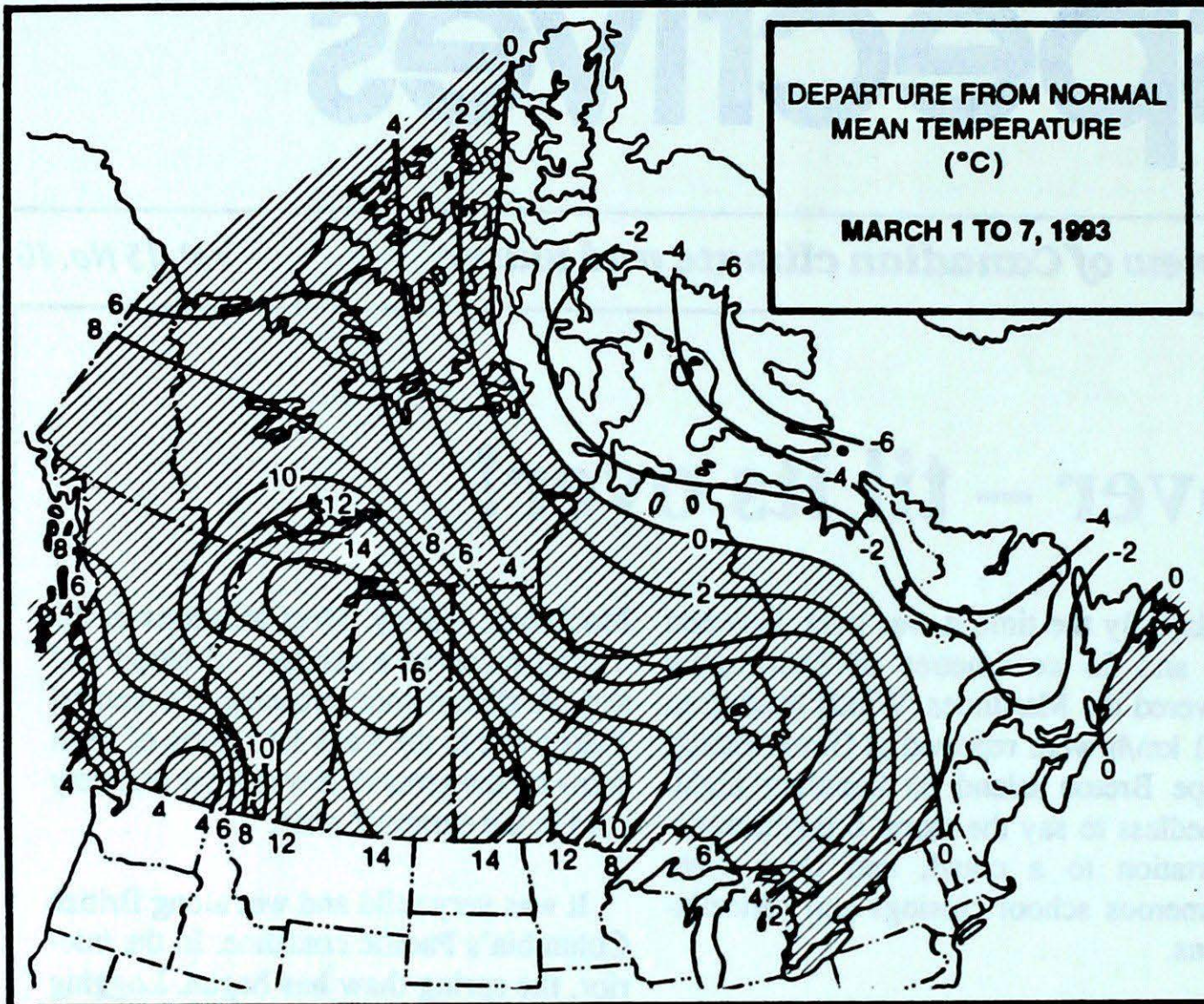
It was very mild and wet along British Columbia's Pacific coastline. In the interior, the spring thaw has begun. Logging roads are softening up. In the north, exploration crews might have to move heavy drilling components out of the oil patch on short notice.

A strong ridge of high pressure gave sunny, record warm weather across the Prairies, rapidly depleting the snow cover. Temperatures reached the teens as far east as Manitoba. A lack of a good snow cover at Fort Chipewyan, in northern Alberta, had organizers scrambling, rearranging winter carnival events.

Significant snowfalls fell in eastern Quebec and along the north shore. Dense fog, which formed between Montreal and Quebec City on March 3, is directly responsible for a multiple car highway pile-up, involving 18 automobiles and 13 transport trucks.

A look ahead...

For the week of March 15, above-normal temperatures are expected across the Yukon Territory. Elsewhere, near to below normal temperatures will occur. Unsettled weather is likely over British Columbia, southern Ontario, southwestern Quebec and the Atlantic region.



Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	-5.7	-17.1
Iqaluit A	-19.9	-29.1
Yellowknife A	-16.8	-27.6
Vancouver Int'l A	7.6	0.6
Victoria Int'l A	8.0	0.2
Calgary Int'l A	-2.2	-14.3
Edmonton Int'l A	-4.2	-17.4
Regina A	-7.1	-19.5
Saskatoon A	-8.1	-20.0
Winnipeg Int'l A	-7.2	-18.8
Ottawa Int'l A	-0.8	-9.0
Toronto (Pearson Int'l A)	1.3	-6.3
Montréal Int'l A	-0.4	-8.5
Québec A	-1.9	-10.7
Fredericton A	0.7	-9.4
Saint John A	0.6	-8.6
Halifax (Shearwater)	1.8	-5.7
Charlottetown A	-0.9	-8.3
Goose A	-5.6	-15.8
St John's A	0.1	-6.2

Weekly temperature and precipitation extremes

	Maximum temperature (°C)	Minimum temperature (°C)	Heaviest precipitation (mm)
British Columbia	Abbotsford A 18	Puntzi Mountain (aut) -15	Port Hardy A 138
Yukon Territory	Watson Lake A 6	Komakuk Beach A -30	Shingle Point A 4
Northwest Territories	Fort Smith A 9	Eureka -49	Cape Young A 9
Alberta	Calgary Int'l A 15	Red Deer A -12	Slave Lake A 9
Saskatchewan	Moose Jaw A 13	Cree Lake -17	Cree Lake 2
Manitoba	Dauphin A 15	Churchill A -29	Thompson A 20
Ontario	Red Lake A 11	Lansdowne House -24	Windsor A 25
Quebec	Mont Joli A 9	Schefferville A -38	Blanc Sablon A 33
New Brunswick	Saint John A 5	St-Léonard A -17	Moncton A 41
	St Stephen (aut) 5		
Nova Scotia	Sable Island 8	Truro -14	Sydney A 40
Prince Edward Island	Charlottetown A 2	Charlottetown A -18	Charlottetown A 47
Newfoundland	Daniels Harbour 8	Churchill Falls A -38	Bonavista A 48

Across The Country...

Highest Mean Temperature	Abbotsford A (B.C.) 9
Lowest Mean Temperature	Eureka (N.W.T.) -41

93/03/01-93/03/07

CLIMATIC PERSPECTIVES
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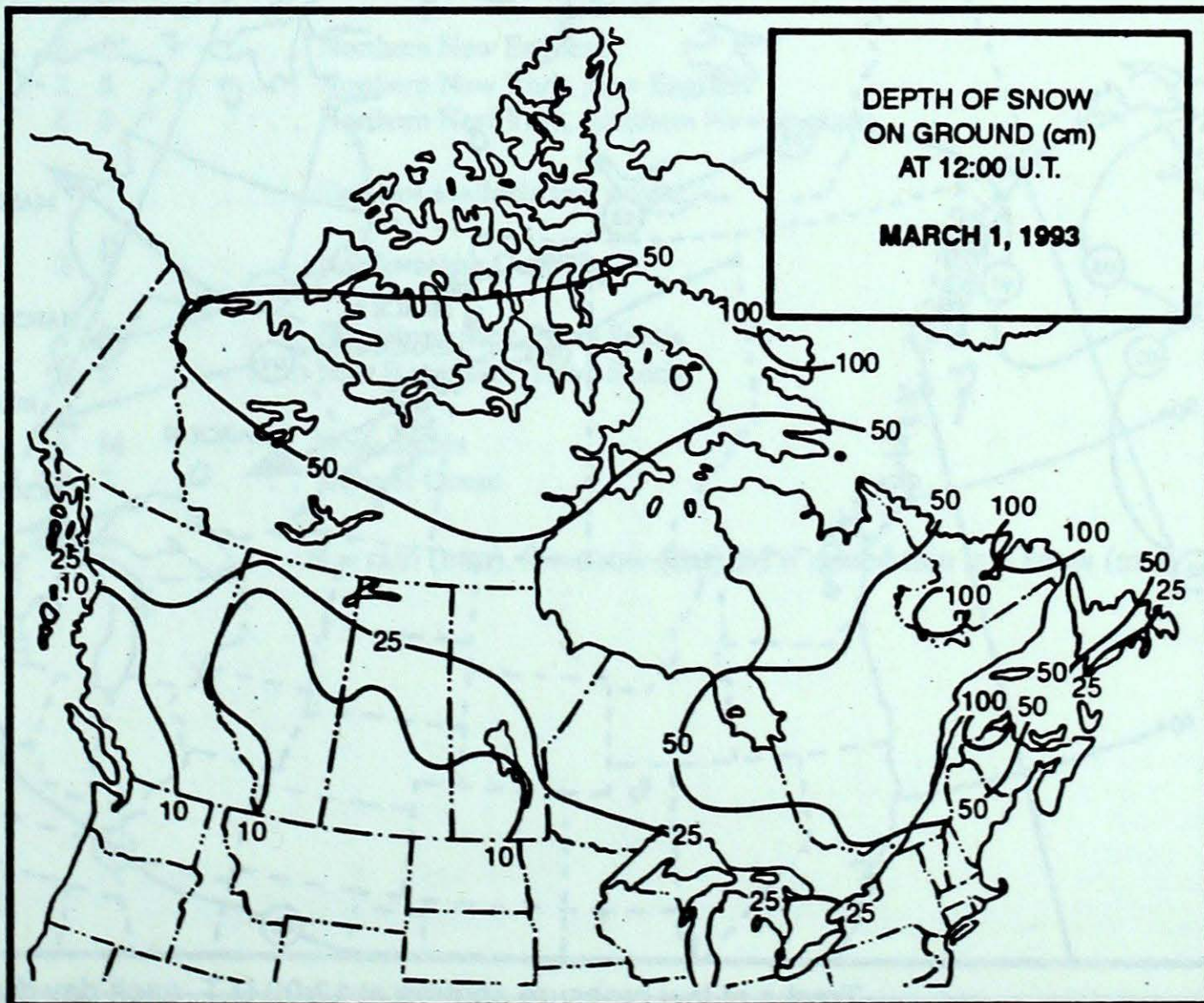
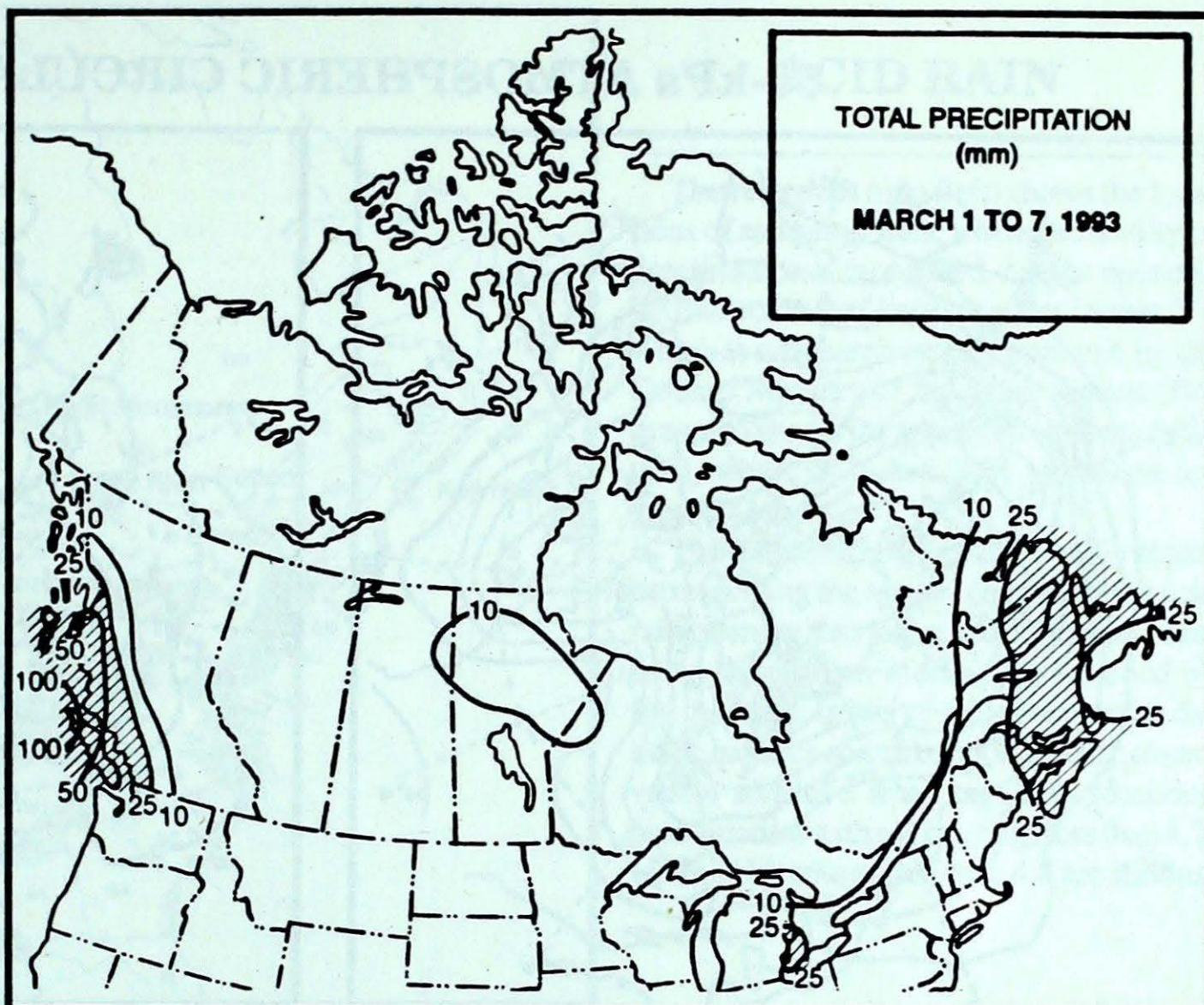
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The purpose of the publication is to make topical information available to the public concerning the Canadian Climate and its socio-economic impact.

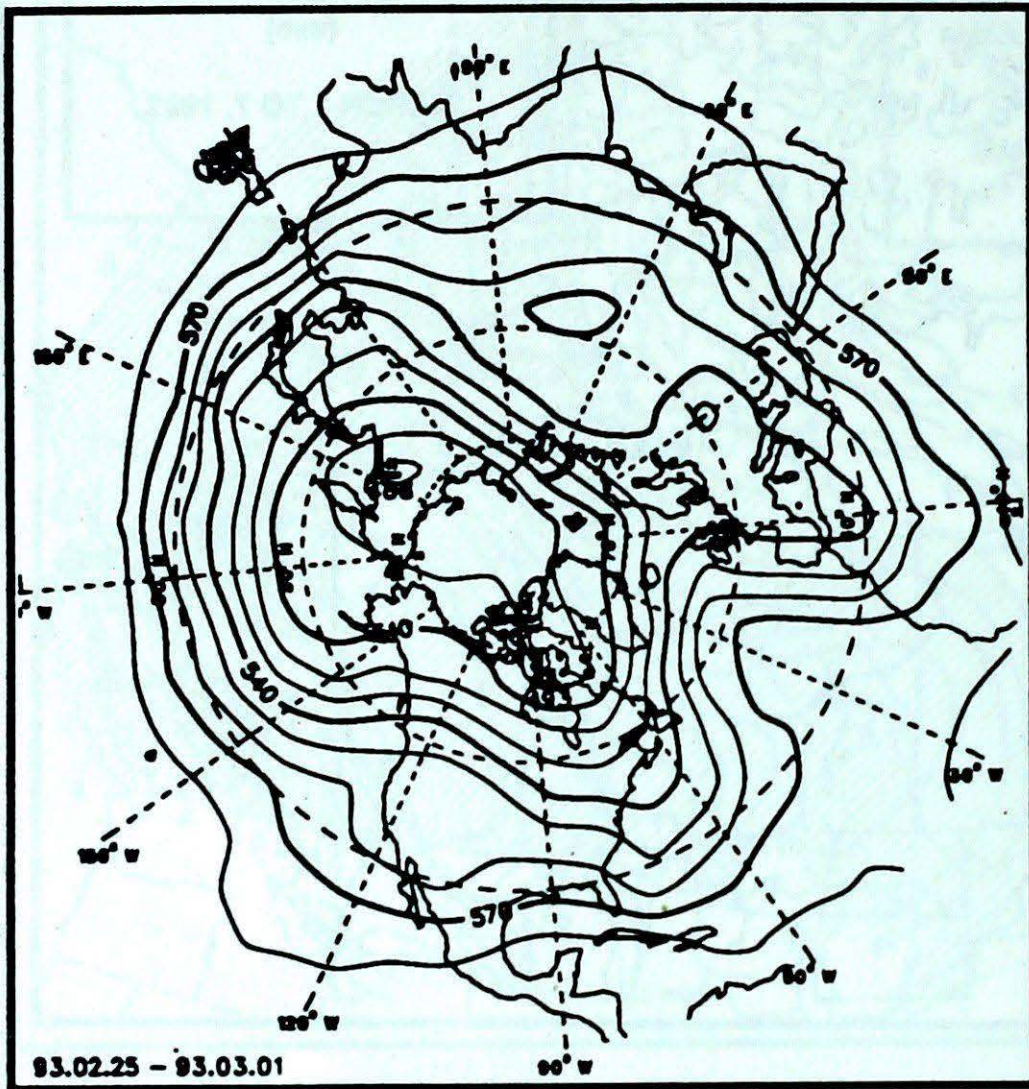
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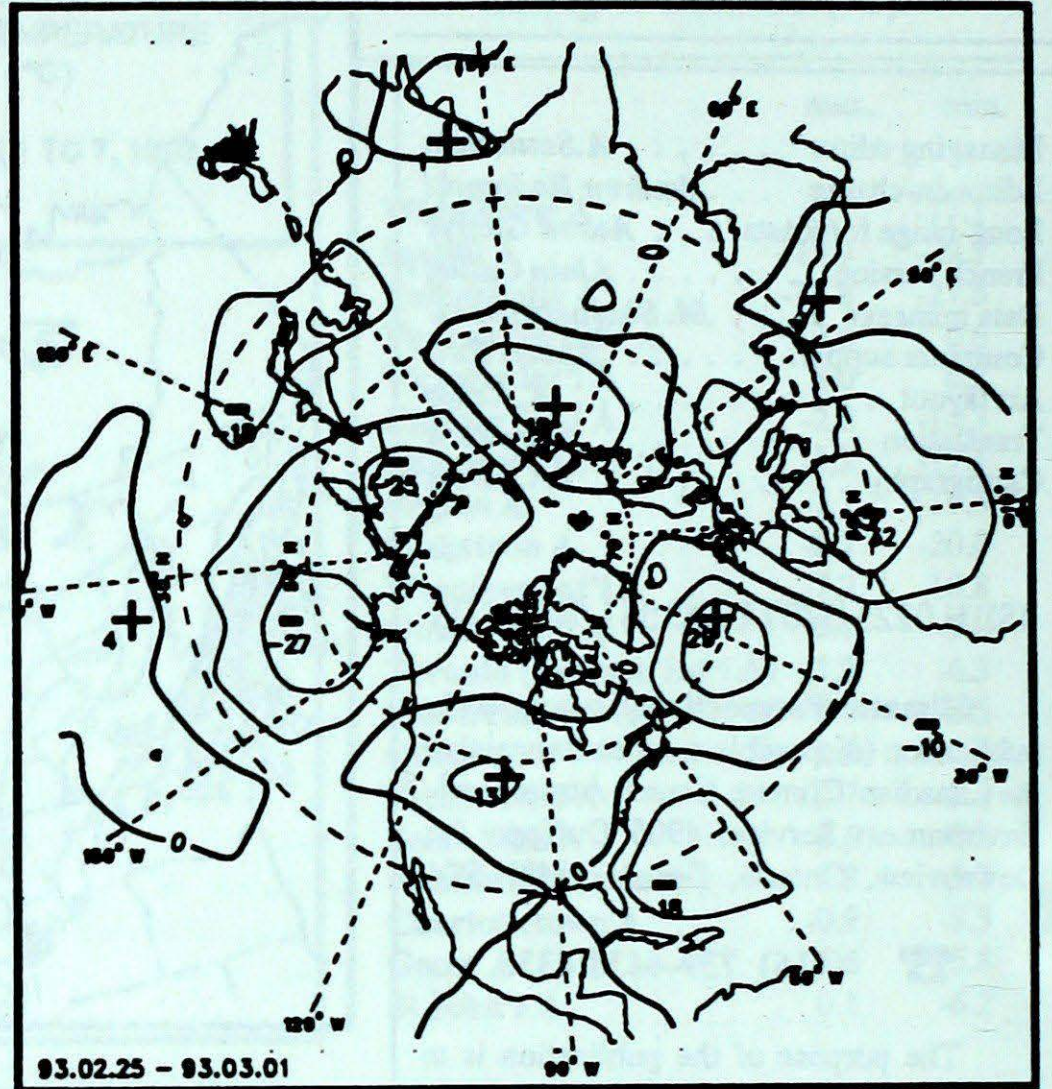
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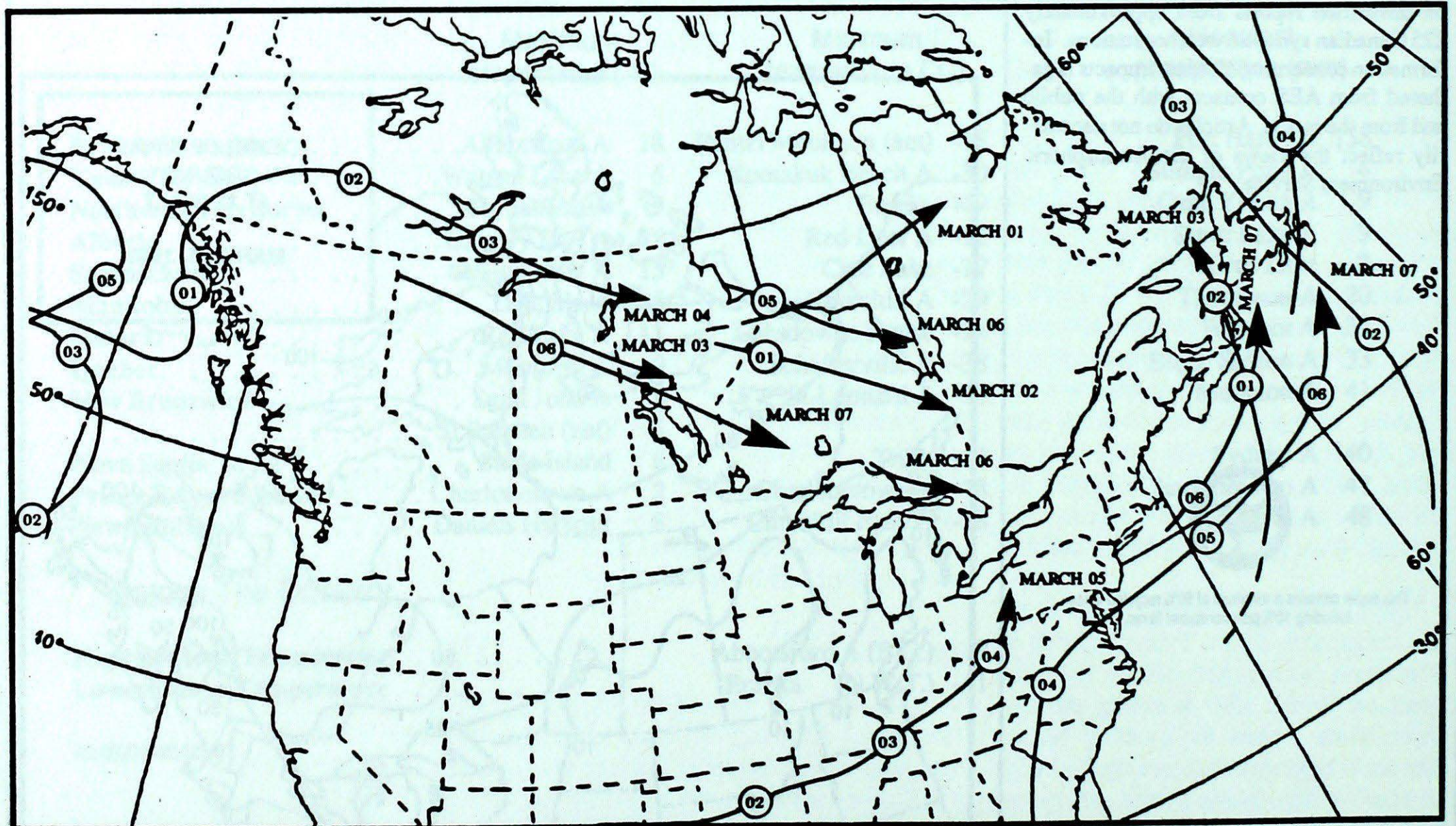
50-kPa ATMOSPHERIC CIRCULATION



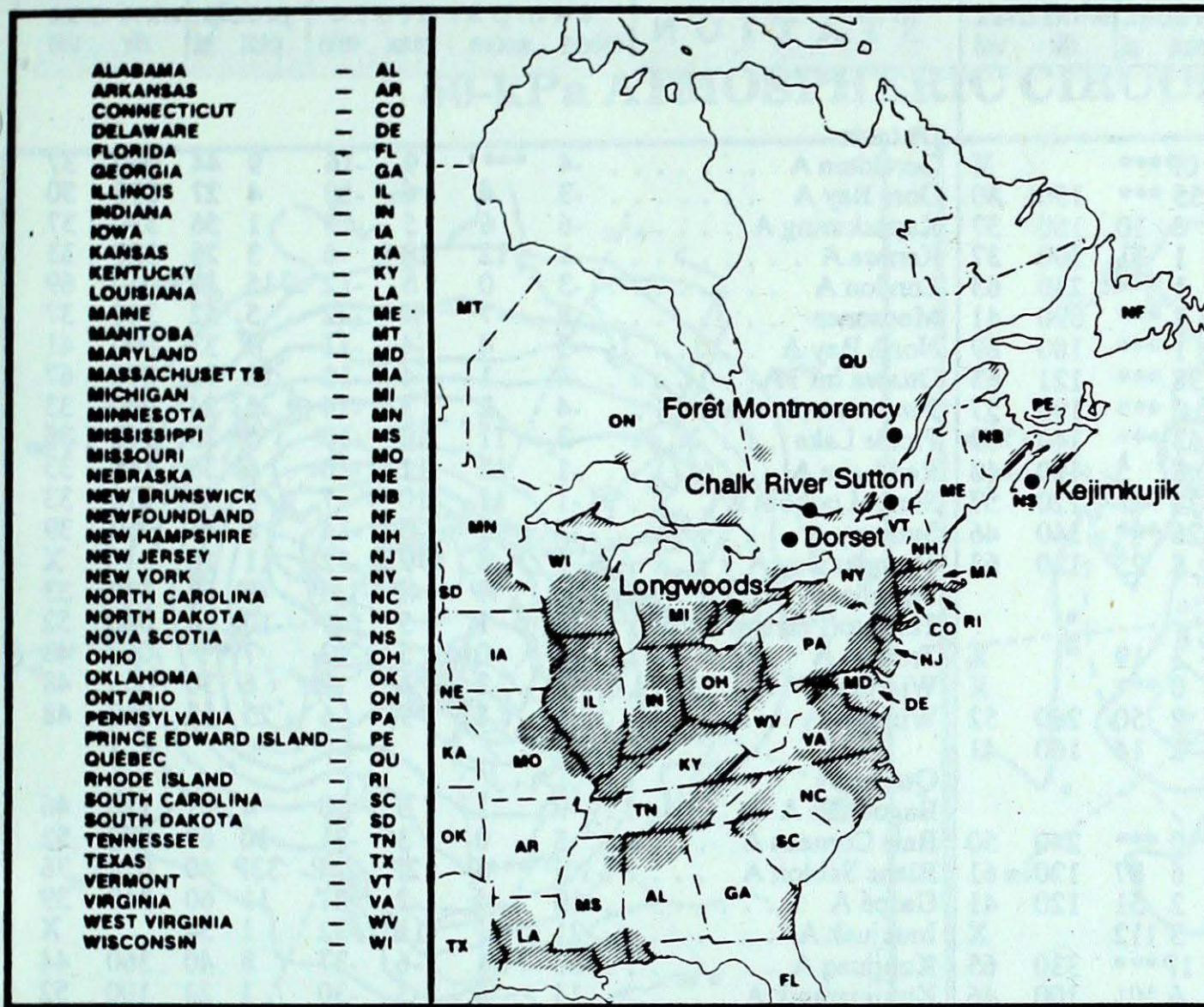
Mean geopotential height
50-kPa level (10 decametre intervals)



Mean geopotential height anomaly
50-kPa level (10 decametre intervals)



Tracks of low pressure centres at 12:00 U.T. each day during the period.



ACID RAIN

The reference map (left) shows the locations of sampling sites, where the acidity of precipitation is monitored. All are operated by Environment Canada except Dorset (*), which is a research station operated by the Ontario Ministry of the Environment. The map also shows the approximate areas (shaded), where SO₂ and NO_x emissions are greatest.

The table below gives the weekly report summarizing the acidity (or pH) of the acid rain or snow that fell at the collection sites, and a description of the path travelled by the moisture laden air. Environmental damage to lakes and streams is usually observed in sensitive areas regularly receiving precipitation with pH readings less than 4.7, while pH readings less than 4.0 are serious.

SITE	day	pH	amount	AIR PATH TO SITE
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February 28 to March 6, 1993

Longwoods	04	5.0	15 S	... New York, southern New England
Dorset *	04	4.5	1 S	... Northern New England
	05	4.2	2 S	... Northern New York, New England
	06	4.0	6 S	... Northern New York, northern New England
Chalk River				... Data not available this week
Sutton	06	4.2	2 S	... Northwestern Quebec
Montmorency	05	4.8	4 S	... New Brunswick, Nova Scotia
	06	4.8	3 S	... New Brunswick, Nova Scotia
Kejimikujik	28	4.9	19 M	... Nova Scotia
	05	5.1	29 S	... Atlantic Ocean

R = rain (mm), S = snow (cm), M = mixed rain and snow (mm)

STATION	temperature				precip. ptot st	wind max		STATION	temperature				precip. ptot st	wind max			
	mean	anom	max	min		dir	vel		mean	anom	max	min		dir	vel		
British Columbia								Ontario									
Blue River A	1P	6P	7P	-10P	0P***		X	Geraldton A	-4	***	9	-16	9	44	060	37	
Comox A	9	5	14	1	55	***	150	80	Gore Bay A	-3	4	6	-10	4	27	090	50
Cranbrook A	2	4	11	-12	0	10	160	37	Kapuskasing A	-6	6	5	-19	1	56	330	37
Fort Nelson A	-2	12	9	-11	1	31	300	37	Kenora A	1	12	10	-6	3	25	320	33
Fort St John A	4	14	10	-3	1	***	230	63	London A	-3	0	5	-12	15	18	050	69
Kamloops A	6	6	14	-4	1	***	090	41	Moosonee	-8	7	4	-22	5	52	340	37
Penticton A	3	2	11	-3	1	***	180	69	North Bay A	-3	4	4	-11	7	33	090	41
Port Hardy A	7	4	11	1	138	***	121	63	Ottawa Int'l A	-4	1	4	-12	13	96	070	67
Prince George A	4	10	11	-4	2	***	190	57	Petawawa A	-4	2	3	-14	5	24	090	33
Prince Rupert A	5	3	11	-2	63	***	140	83	Pickle Lake	-3	11	10	-10	5	25	140	35
Smithers A	4	8	9	-4	6	5	120	48	Red Lake A	-1	12	11	-10	6	36	140	33
Vancouver Int'l A	9	5	16	3	24	***	120	57	Sioux Lookout A	-1	11	10	-7	7	37	170	33
Victoria Int'l A	8	4	15	-1	26	***	140	46	Sudbury A	-3	5	5	-14	8	41	050	39
Williams Lake A	4	8	11	-8	8	25	130	63	Thunder Bay A	-1	8	9	-12	1	10		X
Yukon Territory								Timmins A									
Komakuk Beach A	-22	5	-16	-30	3	19		X	Toronto(Pearson Int'l A)	-2	1	5	-9	10	20	060	52
Teslin (aut)	-2	***	4	-10	0	***		X	Trenton A	-3	0	5	-12	7	***	060	48
Watson Lake A	-6	10	6	-19	2	50	260	52	Warton A	-2	2	4	-9	6	30	060	48
Whitehorse A	-2	9	5	-14	2	14	160	41	Windsor A	1	1	9	-6	25	15	040	48
Northwest Territories								Québec									
Alert	-32	2	-22	-40	0	***	240	50	Bagotville A	-9	1	0	-20	4	37	120	46
Baker Lake A	-26	3	-15	-37	6	87	120	61	Baie Comeau A	-8	0	3	-21	10	67	070	52
Cambridge Bay A	-30	3	-18	-40	2	51	120	41	Blanc Sablon A	-10P	***P	2P	-24P	33P	40	010	76
Cape Dyer A	-30	-6	-20	-39	3	112		X	Gaspé A	-10	-4	-2	-21	11	60	310	39
Clyde A	-35P	-7P	-22P	-43P	1P	***	330	65	Inukjuak A	-21	1	-11	-32	1	34		X
Coppermine A	-21	9	-10	-29	6	101	100	46	Kuujuuaq A	-20	-1	-6	-37	8	40	360	44
Coral Harbour A	-30	-3	-17	-41	2	28	330	48	Kuujuuarapik A	-14	6	-3	-30	1	24	100	52
Eureka	-41	-2	-31	-49	0	18		X	La Grande Rivière A	-11	9	-2	-24	5	69		X
Fort Smith A	-2	16	9	-15	6	27	280	39	Mont Joli A	-8	-1	9	-19	13	54	060	56
Hall Beach A	-33	-2	-18	-45	3	53	290	56	Montréal Int'l A	-5	0	4	-14	7	25	050	69
Inuvik A	-21	5	-9	-32	2	76	320	33	Natashquan A	-11	-3	-1	-21	26	***	030	35
Iqaluit A	-33	-8	-17	-42	1	21	330	65	Québec A	-7	-1	3	-17	8	61	070	78
Mould Bay A	-31	4	-23	-42	1	18		X	Schefferville A	-21	-4	-5	-38	1	56	350	41
Norman Wells A	-14	9	-8	-20	4	41	120	48	Sept-Îles A	-9	-1	0	-20	8	51	010	41
Resolute A	-33	0	-27	-42	2	18	140	65	Sherbrooke A	-6	-1	2	-25	9	54	090	44
Yellowknife A	-10	12	-4	-24	9	40	310	39	Val-d'Or A	-7	4	0	-20	4	52	110	44
Alberta								New Brunswick									
Calgary Int'l A	5	14	15	-6	1	***	260	67	Fredericton A	-6	-2	5	-13	23	43	060	61
Cold Lake A	3	15	11	-6	1	15	270	35	Miscou Island (aut)	-8P	-2P	-1P	-12P	1P	***		
Edmonton Namao A	4	13	11	-4	1	5	270	37	Moncton A	-6P	-1P	5P	-14P	41P	38	360	70
Fort McMurray A	4	18	11	-6	1	7	270	41	Saint John A	-6	-2	5	-11	28	49	360	70
Grande Prairie A	2	13	9	-8	1	6	250	52	St Leonard A	-8	***	1	-17	12	102	320	54
High Level A	0	17	7	-9	1	7	270	44	Nova Scotia								
Lethbridge A	6	13	14	-4	3	***	250	76	Greenwood A	-4	-2	5	-12	29	35	040	76
Medicine Hat A	5	13	15	-3	2	***	240	59	Shearwater A	-3	-1	6	-11	30	38	070	74
Peace River A	2	15	10	-7	1	5	280	48	Sydney A	-3	0	3	-9	40	39	090	63
Saskatchewan								Yarmouth A									
Cree Lake	0	17	9	-17	2	26	310	41		-2	-2	4	-8	32	***	090	82
Estevan A	2	13	12	-7	1	5	320	56	Prince Edward Island								
La Ronge A	2	16	11	-6	1	8	290	50	Charlottetown A	-7	-3	2	-18	47	56	030	85
Regina A	1	14	10	-8	1	5	320	43	East Point (auto)	-4P	***P	1P	-11P	24P	***		
Saskatoon A	0	14	8	-9	1	5		X	Newfoundland								
Swift Current A	3	14	11	-3	1	5	270	74	Cartwright	-15	-5	1	-30	*	149	340	59
Yorkton A	2	17	11	-6	1	5	290	44	Churchill Falls A	-20P	-3P	-5P	-38P	2P	110	010	44
Manitoba								St John's A									
Brandon A	0	13	6	-8	1	6		X	Gander Int'l A	-5	-1	5	-19	23	39	100	59
Churchill A	-21	2	-13	-29	9	31	130	52	Goose A	-18	-7	-3	-33	37	84	060	33
Lynn Lake A	-7	11	3	-14	15	38		X	Stephenville A	-5	0	6	-16	19	80	080	63
The Pas A	1	16	11	-6	1	*	330	48	St John's A	-2	1	7	-11	47	18	180	65
Thompson A	-9	9	-1	-18	20	45		X	St Lawrence	-2	1	5	-10	9	6		X
Winnipeg Int'l A	0	13	8	-8	0	16	350	41	Wabush Lake A	-18	-2	-6	-36	4	60	010	37

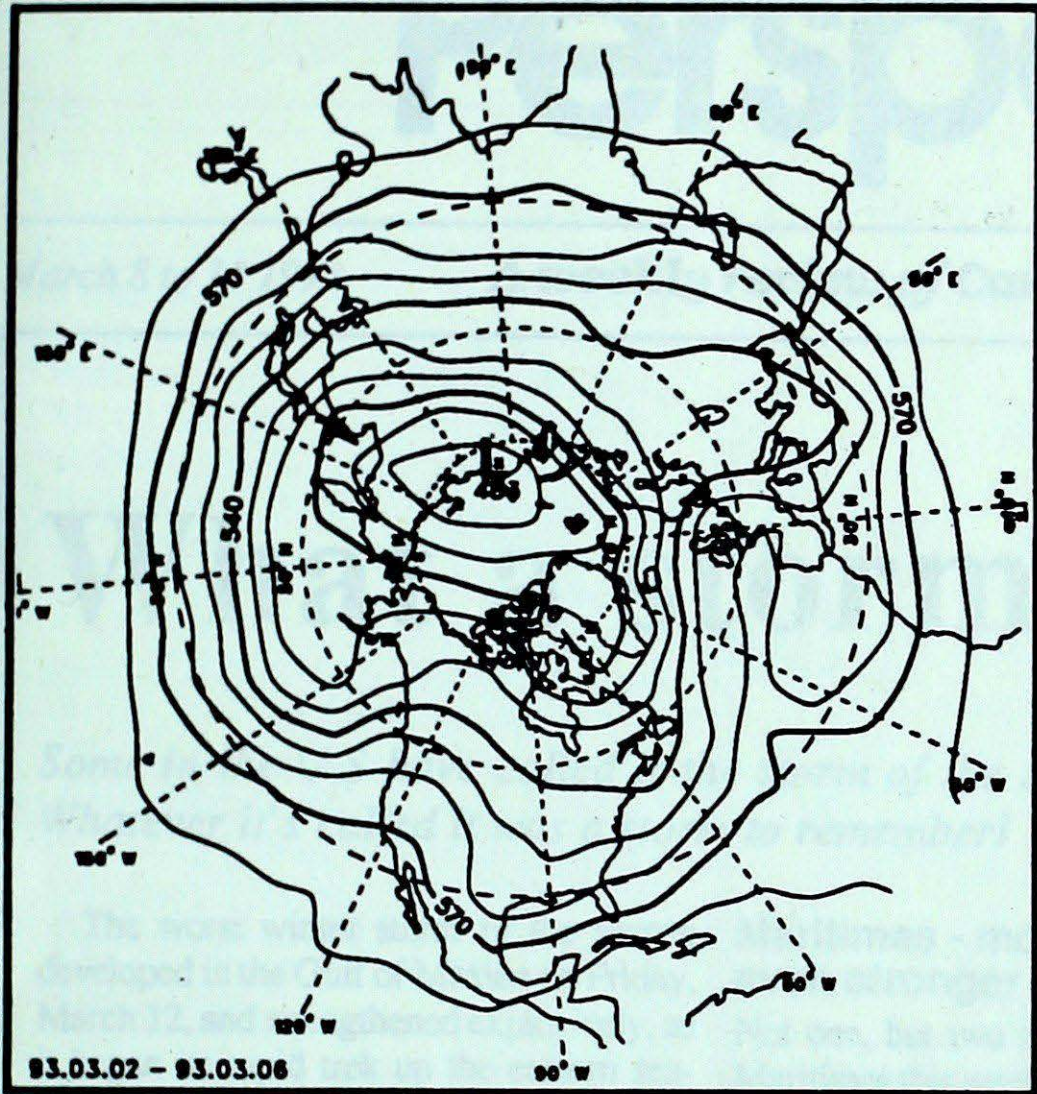
93/03/01-93/03/07

mean = mean weekly temperature, °C
 max = maximum weekly temperature, °C
 min = minimum weekly temperature, °C
 anom = mean temperature anomaly, °C

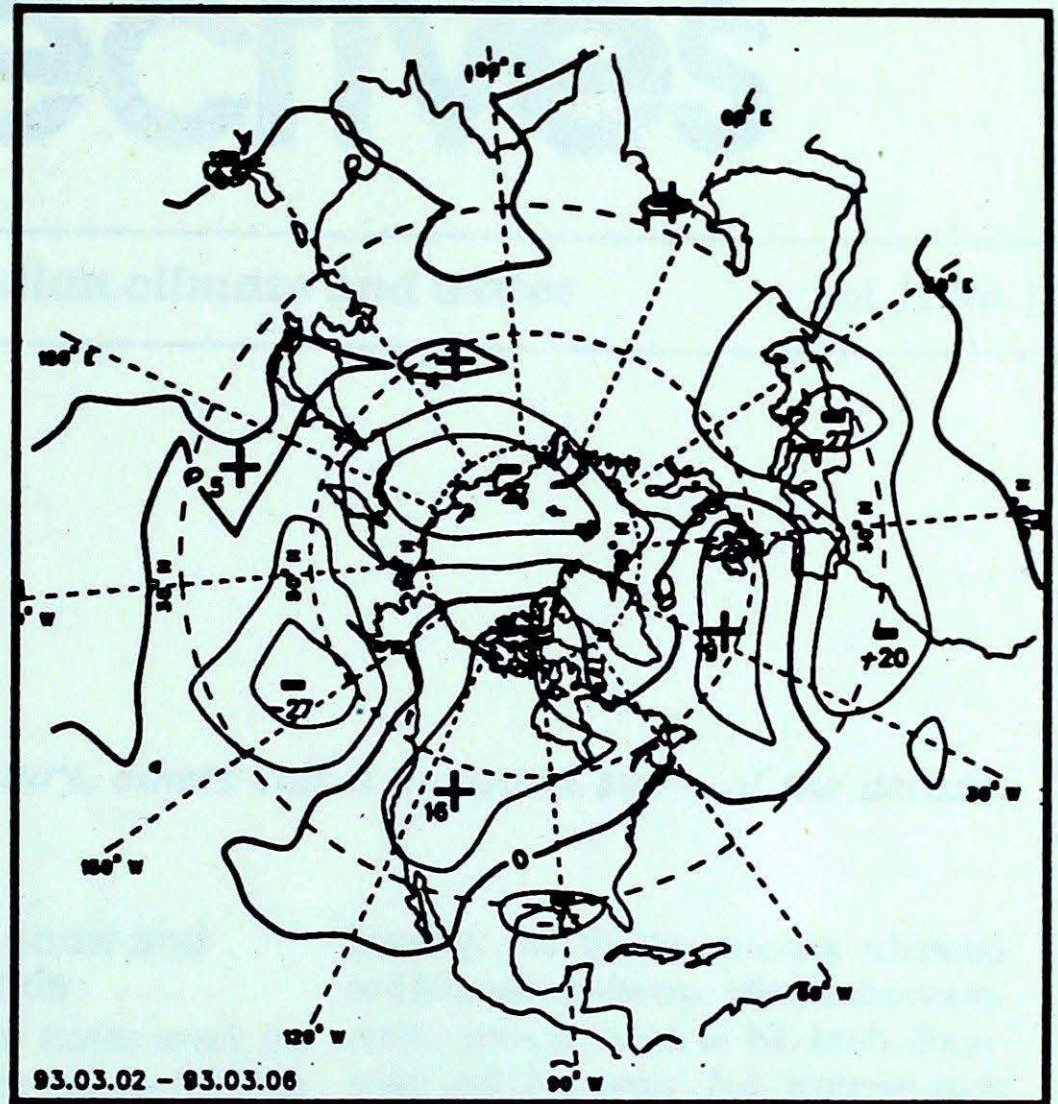
ptot = weekly precipitation total in mm
 st = snow thickness on the ground in cm
 dir = direction of max wind, deg. from north.
 vel = wind speed in km/h

— Annotations —
 X = no observation
 P = less than 7 days of data
 * = missing data when going to printing.

50-kPa ATMOSPHERIC CIRCULATION



Mean geopotential height
50-kPa level (10 decametre intervals)



Mean geopotential height anomaly
50-kPa level (10 decametre intervals)

